

# SIXTEENTH REPORT

(EIGHTH BIENNIAL)

OF THE

# STATE BOARD OF HEALTH

AND

VITAL STATISTICS

OF

MINNESOTA, 1895-96.

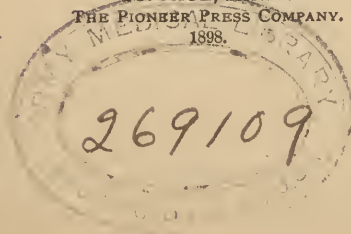
CONTAINING

REPORT OF THE WORK OF THE BOARD BY THE SECRETARY

WITH APPENDICES.

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ST. PAUL, MINN.:  
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1898.



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OFFICE OF THE STATE BOARD OF HEALTH  
AND VITAL STATISTICS,  
ST. PAUL, MINN., Jan. 1, 1897.

*To His Excellency, David M. Clough, Governor;*

SIR: I have the honor to transmit herewith the report of the work of the State Board of Health and Vital Statistics for the period of two years, from Jan. 1, 1895, to Jan. 1, 1897. It includes:

*First*—The report of the work of the board by the secretary.

*Second*—The financial statement of the board.

*Third*—Statistics of glanders in the state.

*Fourth*—Records of the use of malline.

*Fifth*—Record of the use of tuberculin.

*Sixth*—Statistics of work of the inspector of live stock at New Brighton, Minn.

*Seventh*—Statistics of inter-state notifications of infectious disease.

*Eighth*—Statistics of immigrants exposed to infectious disease en route to Minnesota.

*Ninth*—Graphic charts, showing the comparative mortality in Minnesota, from diphtheria, enteric fever, tubercular disease and diarrhœal diseases of children.

The "Fifth Biennial Report," by the secretary, on "Vital Statistics of the State of Minnesota," for the years 1894 and 1895, is published separately.

Very respectfully, your obedient servant,

CHARLES N. HEWITT,

*Secretary and Executive Officer.*

# MEMBERS OF THE STATE BOARD OF HEALTH AND VITAL STATISTICS.

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FRANKLIN STAPLES, M. D., President,	. . . . .	Winona.
HENRY HUTCHINSON, M. D., Vice President,	. . . . .	St. Paul.
CHARLES N. HEWITT, M. D., Secretary and Executive Officer,	. . . . .	Red Wing.
F. F. WESBROOK, M. D., Bacteriologist,	. . . . .	Minneapolis.
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HENRIK NISSEN, M. D.,	. . . . .	Albert Lea.

All official correspondence should be addressed to the Secretary, the executive officer of the Board, 515 Pioneer Press Building, St. Paul, Minn.



## REPORT OF THE SECRETARY FOR THE YEARS 1895 AND 1896.

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I respectfully submit the following report of the work done by the board for the years 1895 and 1896:

The public health service of Minnesota consists of the state board of health and 1,782 local boards (40 in cities, 3 in boroughs, 333 in villages, and 1,400 in townships). In addition to these there are 22 village boards which are in direct communication and coöperation with the state board that have made no reports.

The duties of the state and local boards, as prescribed by law, are mutually interdependent and helpful. Their relations are defined chiefly in chapter 132, Laws of 1883, as amended. The value of this association has been amply demonstrated by experience, both in every-day work and in emergency.

Besides its work within the state, the state board early found it necessary to obtain information as to the existence of infectious diseases beyond our borders, and the danger to which our population might be exposed from them. This danger is of two general sorts: First, from other states, and, second, from other countries, both through travel and immigration. To forfend as far as possible the first danger, importation from other states, your secretary, in 1879, proposed an agreement between state boards of health for mutual notification of such diseases. This plan was finally adopted by other state boards in 1886, and has been in partial operation since.

Full details of this agreement will be found in Appendix 5, secretary's report, fourteenth report of this board.

The difficulty, then and now, is, that, while in Minnesota notification of infectious disease is obligatory by local boards to the secretary of the state board, it is not so for most of the other states, and therefore their state boards have no immediate and accurate knowledge of the local existence of infectious diseases within their borders.

I am glad to report that other states are gradually following the example of Minnesota, and as their number increase so will the value of the notification. Eighty-seven reports have been received in 1895-96 from twenty-one states, reporting the existence of smallpox (in Appendix I.)

But our greatest danger from without has been the importation of infectious disease in the clothing, baggage, and persons of emigrants from beyond the United States.

In 1886 this board made vigorous efforts to secure the seacoast notification from New York harbor, but failed. In 1889 and 1891 the immigration bureau of the treasury department was established. Your secretary immediately made a request, through the marine hospital service, to the secretary of the treasury, April 13 and June 10, 1891, and on the 24th of June of that year the first notification of infectious disease from the general government to the board of health of an interior state was sent to Minnesota from New York, and has gone on uninterruptedly since. (For history of the arrangement, see Appendix 5, Fourteenth Report, 1891 and 1892.)

The second arrangement was made with the quarantine service of the Dominion of Canada. The result has been that in 1895 and 1896 forty-six notifications have been received from New York, seven from Canadian quarantine, and two from other seaports of the United States, covering 464 persons who have been exposed to infectious disease, with their number, date of arrival, form of disease, and destination in Minnesota. These notifications have been sent from this office to localities concerned, and a large number of the persons reported subjected to inspection on arrival. (See Appendix II.)

I think the time has now arrived to make this notification more complete, and advise that this board take measures to that end.

#### WORK WITHIN THE STATE.

Of the population of the state, about sixty per cent live in townships and villages of less than 1,000 population. Most of this population is in townships whose board of supervisors is the local board of health.

There are very few medical men resident in townships, so that the chairman of the board is the acting health officer, and reports directly to the secretary of the state board for advice and assistance. These chairmen are, with their boards, elected every year, in March, and they are immediately furnished with a full file of the publications of the state board respecting their work.

In March, 1896, 61.24 per cent of the chairmen were re-elected, which means that about 550 new chairmen had to be instructed in the duties of their office, and this is about the usual number of new chairmen elected each year. During the years 1895 and 1896 there were sent to the chairmen of the township boards nearly 100,000 circulars of instruction, copies of laws, and blanks for reports.



More than one-half of the population of the state live in townships where a large proportion of preventable diseases and deaths occur, so that the duties of these boards are very important, and all the more difficult because the population is a scattered one.

For these reasons the relations of the chairmen and your secretary have become very constant and intimate.

During the years 1895 and 1896 the correspondence with them included 986 letters about diphtheria, 431 as to scarlatina, 827 as to glanders, 51 as to rabies, 1,462 as to infectious diseases of swine, and 1,010 on miscellaneous topics.

There have been reported by letters, outbreaks and cases of diphtheria and scarlatina as follows:

## SCARLATINA, 1895.

Outbreaks.....	96
Localities.....	84
Counties.....	41
Cases.....	244
Deaths.....	8

## SCARLATINA, 1896.

Outbreaks.....	62
Localities.....	57
Counties.....	39
Cases.....	196
Deaths.....	8

## DIPHTHERIA, 1895.

Outbreaks.....	204
Localities.....	173
Counties.....	59
Cases.....	553
Deaths.....	75

## DIPHTHERIA, 1896.

Outbreaks.....	233
Localities.....	181
Counties.....	61
Cases.....	663
Deaths.....	114

I beg to repeat the quotation from my report of two years ago, because continued experience has only increased the force of the statement:

*The Need for Nurses in Townships*—Nurses trained to the care of infectious diseases are not to be had, and those of the average sort find better wages, accommodations and facilities in villages and cities, so that they are difficult to secure in townships even for greater wages than poor people can, or local boards are willing, to pay. I am sure that those who ought to supply this grievous need are not aware of its extent or importance. I can give many

illustrations of it from the pitiful appeals of chairmen to the state board for *any nurse* who can do something to lighten the burden of the mothers of families stricken with diphtheria (for example) who are utterly unable properly to care for them. Add to this, lack of roomy houses, and proper food or cooking, and frequent deaths, with no help except what the chairman and others can give on the outside of the house, and one can form an idea of conditions repeatedly paralleled in the experience of township boards of health. Infectious diseases prevail largely among children, and commonly in the families of newcomer farmers, with scarcely any accommodations or knowledge for their care, able to speak only their own language and ignorant how to apply for help or what to ask for.

No one who has any knowledge of the facts can charge this lack of efficient and sufficient nursing to any want of neighborly feeling or to heartless disregard of the needs of others, for it would be unjust and untrue. There are none, or very few, unemployed women in any farming community; all are busy and many find little time for social enjoyment, much less for the prolonged isolation which the nursing of the sick of infectious disease always demands. Mothers of families have to consider the danger to their own children which such services to others involve under the peculiarly difficult circumstances here referred to, so that it is not difficult to account for the lamentable fact that proper nursing is often wanting in country districts.

I have repeatedly called the attention of the board and of the public to this subject, and I should fail in a very important part of my duty did I neglect any opportunity to impress upon all churches and Christian people to examine into this need and help to supply it.

*Common humanity and public safety demand that no time be lost in making the needful arrangements for providing a supply of competent women nurses, willing to serve in the care of infectious diseases in country districts, and arranging, in part at least, for their compensation.*

It must not be forgotten that the need for this aid varies exceedingly. Sometimes we could use a half dozen in a single township; at other times we do not know where to use one. But, as we have no supply, the demand is mostly from those in despair of other help, while if it was known that a supply was available, I am sure the deserving calls would exceed it.

*How to Prevent the Spread of Infection in Families. Isolation Houses*—Buildings plainly furnished belonging to one or several adjacent townships and available as places of refuge for *well* children of a family in which infectious disease appears, would be of inestimable advantage and the means of limiting the victims to the first attacked.

This is proved by the fact that we have the record of many outbreaks (of diphtheria, for example) in which the removal of the *well* children to the family of a relative or friend where were none, or grown-up children, has saved them from the disease and enabled the mother to devote her attention to the sick exclusively, to the mutual advantage of sick and well. The home in this way becomes a hospital from which all but the sick and attendants are excluded, and to which any other of the children taken sick can be immediately returned. The result has repeatedly been that there was but one, or possibly two, sick where if all had remained at home all would have probably taken the infection. This removal to a place of safety in another family is, unfortunately, rarely possible. Such a building as is needed would cost



but a few hundred dollars. The furnishing need be only a few iron bedsteads, some chairs and a small cook stove; all the rest would come from the home of the family affected, as would caretaker, food and other necessities. In case the family were a town charge this arrangement would be cheaper than to care for the same children *sick* at home.

Despite the difficulties incidental to their organization, limited term of service and consequent inexperience, some of the most efficient sanitary service in the control of infectious disease has been done by farmers,—chairmen of township boards of health,—as above demonstrated. This steady advance of these boards through the activity of their chairmen is perhaps the most noteworthy fact in the working of the state public health service for the past two years.

#### LEGISLATION FOR TOWNSHIP BOARDS.

I repeat the suggestion that this board ask the legislature to so adjust the law that the township boards be chosen for one, two and three years, so that there may be always upon the board two members whose experience is at least two years. I believe this would materially increase the efficiency of these boards, not only for public health work, but for the other duties which belong to them.

Clerks of townships are required by law (chapter 114, Laws of 1887) to make a monthly report of births and deaths to the secretary of the state board. Fortunately eighty-four per cent of these officers are re-elected, and some of them serve for a long term of years.

#### CITY AND VILLAGE BOARDS OF HEALTH.

About forty per cent of the population of the state reside in cities of over 1,000 inhabitants, twenty-one per cent in cities of St. Paul and Minneapolis, and nine per cent in other cities of over 5,000 population. The cities of St. Paul and Minneapolis have a health commissioner. Thirty-eight other cities have a board of health with a medical man as health officer. Of the 358 villages and boroughs in the state, 336 have boards of health, and all but thirty-four have physicians as health officers. In these thirty-four laymen are acting as health officers until a medical man can be found to serve.

I must repeat the statement of several preceding reports, that it is difficult to maintain the organization of boards of health in the smaller villages, because of the indifference of local authorities and their disinclination to provide for current expenses.

Of the 342 physicians who are now serving as health officers in cities, villages and boroughs, but two receive over \$2,000 salary per annum, one receives \$1,000, two receive \$300, and much the larger proportion receive not over \$20 a year, while more than half receive no salary at all. I repeat the recommendation of my last report.

*Legislation Needed*—The facts ought to secure legislation for the following purposes:

1. To fix the compensation of health officers of villages and cities so that it may be sufficient to induce a capable physician to accept and perform the duty, and that he may know what is to be his income as he now knows, in the language of the law, what are his duties.

2. A definite provision for the current expenses of the health officer and a contingent fund for the emergency of sudden infectious disease.

3. To define the executive machinery for the removal of nuisance or regulation of offensive trades, and provide for the various duties connected with the management of infectious diseases. All these duties are now obligatory, but the means for their performance are at fault or in dispute.

4. To secure the local independence of health officers, in matters of official opinion and action, in dealing with infectious diseases.

5. It is very important that the legislature make some general provision to remedy these defects in a law which is in most respects a model. (Chapter 132, section 4, Laws 1883.)

#### VITAL STATISTICS.

My fifth biennial report is ready for the printer. I have abstracted from my studies of nine years the facts of mortality from enteric fever, diphtheria, diarrhoeal diseases of children, and tubercular diseases for the years 1894 and 1895 and the average of nine years. The facts are arranged as per cent of all deaths and the ratio of deaths to 100,000 population for classes of population, for sex, for age, for parent nativity and for monthly mortality. No returns of a similar character have been furnished by any other state. They condense the evidence of our own statistics for a series of years, and have been prepared after the correction of the individual returns by correspondence with the attending physicians and in every other practicable way. (Appendix III.)

The report upon vital statistics includes all the information derived from the returns for the last two years and for the average of nine years.

There has been a steady decline in the mortality from diphtheria for the nine years. The mortality was but 494 for 1894 and 466 for 1895. The deaths to population were 29.6 to 100,000 in 1895 and 43.9 for the average of nine years. This reduction has been steady from the beginning, year by year.

The use of antitoxine as a remedy for diphtheria is increasing, and its success seems very encouraging. I am satisfied that its prophylactic use will prove of equal or greater importance than its curative influence, and respectfully urge the board to encourage observations in this direction, especially in the state institutions for children.

The deaths from enteric fever were, in 1895, 36 to 100,000 population, against the average of nine years of 42.5. The greatest prevalence in 1896 was in Duluth. In this city there were 103 deaths up to the 1st of December. Of these 51 occurred in January, 19 in February, 12 in March, and in no other one month were there over 5 deaths from this cause.

During these eleven months there were from typhoid fever 49 deaths in St. Paul, 61 in Minneapolis and 143 in localities of less than 5,000 population.

No other disease has been markedly prevalent during these years.

#### INFECTIOUS DISEASES OF DOMESTIC ANIMALS.

During 1895 and 1896 tuberculin has been used for the diagnosis of tuberculosis, and every effort made to increase its use. Three thousand one hundred and eighty-five doses of tuberculin have been issued from this office. Of 2,975 animals tested 182, or 6.27 per cent were condemned. Of these animals tested 2,472 were in St. Paul; 113, or 4.6 per cent, were condemned. (See Appendix IV.)

*Legislation Advised.*—It seems advisable that an examination of all herds of dairy cows furnishing milk for butter, cheese, or domestic consumption should be made. Tuberculin for such examination should be furnished by the state board of health, and used under the direction of the local boards. Condemned animals should be killed under inspection. The question of permitting carcasses lightly affected to be used for food will bear consideration.

The mortality from tuberculosis in dairy herds costs the dairyman many times the amount incurred in carrying out the use of the tuberculin test.

#### GLANDERS.

Five hundred and seven horses have been reported as suffering from glanders. Of these 317 have been killed. The disease is diminishing because of closer inspection. Mallein furnished free from this office is being more generally used. (See Appendix VI.) Glanders is introduced very largely from adjacent states into the border counties. (See Appendix V. and VI.)

#### SWINE PLAGUE.

This was first reported in October, 1894. It was immediately reported to the bureau of animal industry, and a special inspection asked for and granted. Your secretary accompanied the inspector for two weeks of personal investigation. The disease was found to be swine plague, and not hog cholera. In December, 1894, this board

regulated traffic on the railroads and restricted slaughter. One hundred and two outbreaks have been investigated and 13,678 deaths reported. This is much less than the actual number.

*Legislation Needed.*—First—Authority to permit infected herds to be sent immediately to slaughter, where inspection is made by the United States inspector. This will save the total loss of large numbers.

Second—A better arrangement for interstate inspection by the United States bureau of animal industry.

Third—Better coöperation from adjacent states. The local board, who have abundant power to act, object to taking any active quarantine measures against these infectious diseases among animals because of the expense, and also because of the difficulty in adjusting the claims for damages set forth by owners of such condemned stock.

As instructed by the board, on the 30th of October, 1896, I appointed Mr. W. H. Wittey, recommended by Dr. C. E. Cotton, veterinary inspector of the Minneapolis Board of Health, to act at the New Brighton stock yards, under Dr. Cotton's supervision. The result has been no further complaint from that locality. Slaughter, it is expected, will begin there in February for interstate and foreign commerce, when the inspection will be by the United States inspector, and our service will be no longer needed. His report will be presented to the board. (See Appendix VII.) He has reported daily since his appointment. I allowed him two dollars a day.

#### WORK OF THE SECRETARY IN WATER ANALYSES.

Report of analyses of water for 1895 and 1896, made by the secretary in laboratory of the department of health, University of Minnesota.

Minneapolis city supply.....	621	
St. Paul city supply.....	319	
Twenty-one other city supplies.....	108	
	—	1,048
Private wells .....	93	
Lakes and springs for private use.....	14	
Spring at university.....	46	
Old filter in mechanic arts building at university.....	3	
New filter in mechanic arts building at university.....	148	
New filter at laboratory .....	20	
	—	324
Total .....		1,372



I have erected in the mechanic arts building at the university a large filter after the Massachusetts model, which has been in constant and satisfactory use for some months. One hundred and forty-eight analyses have been made from this source. I am experimenting with a smaller filter for domestic use, and have made twenty examinations of that water. Detailed statement of these examinations is being prepared as an appendix to this report.

#### BACTERIOLOGICAL EXAMINATIONS FOR DIPHTHERIA AND TUBERCULOSIS.

I began these examinations in October, 1894, and continued them until the establishment of the bacteriological laboratory under Dr. Wesbrook. During that time I examined 709 specimens for diphtheria; found the Klebs-Loeffler in 244, mixed cultures in 28, no Klebs-Loeffler in 79, and cocci only in 160. These samples were from sixty-two localities and forty-one counties.

From October, 1894, to April, 1896, I made 208 examinations of tubercular sputa from forty-one localities and twenty-seven counties. Found the bacillus tuberculosis in sixty-two samples, none in 105, and the rest doubtful.

Since the establishment of the bacteriological laboratory all specimens have been sent there.

#### LIBRARY.

The new catalogue is nearly completed. There are 1,917 volumes and 882 pamphlets. I have taken care to make it as complete as possible. The binding has been well done, and there are few similar collections of books of equal value. A few sets need completion, and I advise that it be done immediately.

#### FINANCIAL STATEMENT.

I have to report the St. Paul custom house officer declines to remit the duty on apparatus purchased at Dr. Wesbrook's request for the bacteriological laboratory. I have supplemented the protest of the attorney general by one including the evidence of other state boards, that similar importations for them have been admitted duty free, and sent copies to our senators at Washington requesting their coöperation. The intention is to take the amount of this expenditure from the balance of the unused appropriation of the year 1895-96. Dr. Wesbrook has the bills for the same.

I append a statement of the funds of the board up to Jan. 1, 1897. (Appendix VIII.)



Until the afternoon of Jan. 11, 1897, I did not know that my term as a member of the board had expired. The governor's secretary informed another member of the board that it had, and that I had not been reappointed. This, then, is my last report. I have been secretary of the board since its organization, 1872, and have helped and watched its development from the beginning to the present time. The 4th of next March the board will have completed its first quarter of a century, so that my service as secretary has been within two months of twenty-five years. The best of my life and effort have gone into this work. I have spared neither time, labor nor thought to make it what it ought to be. Such as it is, the record is made and closed. I resume to-morrow the active practice of my profession with the sincere wish that the public health service of Minnesota may maintain and advance the position which it has won among similar organizations in other states. I am still more anxious that it continue to serve the whole people of Minnesota in the future as in the past. I respectfully call the attention of the board to the efficient service of the clerks now in the office, whose work has increased in value with experience and training. Simple justice demands an increase in their compensation. The financial statement has been brought up to Jan. 1, 1897, and compared with the account in the state auditor's office. The apparatus (chemical) belonging to the board in the laboratory of the department of sanitary science is ready for transfer, but it would be a great help to my work there if it could be left for a month until I can replace it.

CHARLES N. HEWITT.

St. Paul, Jan. 11, 1897.

## APPENDIX I.

INTERSTATE NOTIFICATIONS OF INFECTIOUS DISEASE.  
(62 Reports for 1895; 25 Reports for 1896.)

## SMALLPOX.

STATE.	1895.		1896.	
	Cases.	Deaths.	Cases.	Deaths.
Ohio .....	115	11	1	.....
Alabama .....	1	.....	13	.....
Connecticut.....	4	.....	2	.....
New Hampshire.....	19	.....	.....	.....
Tennessee.....	1	.....	.....	.....
Oklahoma Territory.....	3	.....	.....	.....
Illinois .....	7	.....	8	.....
Indiana .....	22	5	3	.....
Wisconsin.....	245	49	5	.....
Pennsylvania.....	262	33	8	.....
Iowa.....	1	.....	1	.....
Massachusetts.....	1	.....	.....	.....
Missouri .....	267	27	.....	.....
Michigan .....	113	26	2	.....
Maryland .....	35	5	.....	.....
Maine .....	1	.....	.....	.....
Rhode Island .....	1	.....	.....	.....
Ontario .....	14	2	.....	.....
Washington .....	.....	.....	2	.....
Kansas .....	.....	.....	2	.....
Quebec.....	.....	.....	2	.....
Twenty-one localities .....	1,112	158	49	.....

## DIPHTHERIA.

Pennsylvania .....	891	344	471	180
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## SCARLATINA.

Pennsylvania .....	.....	.....	202	60
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## APPENDIX II.

## REPORTS FROM PORT OF NEW YORK.

No. Reports.	DISEASE.	Persons.	Localities.	Counties.
41	Measles .....	321	81	43
2	Scarlatina.....	29	10	9
3	Smallpox.....	19	5	4
46	.....	369	96	56

## REPORTS FROM PORT OF QUEBEC, CANADA.

7	Measles .....	80	22	19
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One telegram from Baltimore in re smallpox; number not given to seven local at seven count.  
One telegram from Philadelphia in re smallpox; fifteen persons to four local at seven count.

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APPENDIX III.

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GRAPHIC CHARTS,

SHOWING A COMPARATIVE STATEMENT OF THE MORTALITY IN MINNESOTA

FROM

DIPHTHERIA, ENTERIC (TYPHOID) FEVER, TUBERCULAR  
DISEASES, DIARRHOEAL DISEASES OF CHILDREN,

BY MONTHS FOR THE YEARS 1894 AND 1895, AND THE AVERAGE OF NINE YEARS,  
1887 TO 1895, INCLUSIVE.

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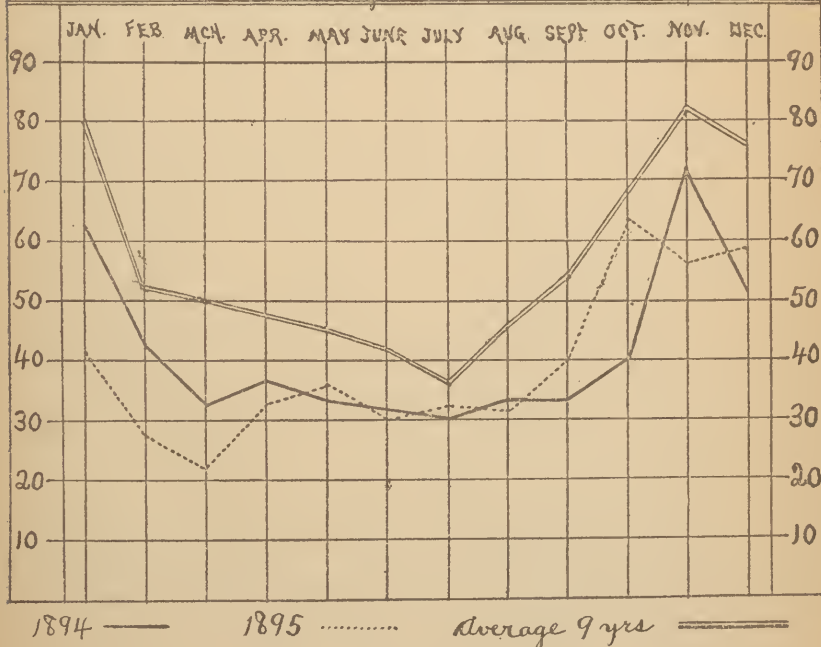
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# MINNESOTA STATE BOARD OF HEALTH <sup>AND</sup> VITAL STATISTICS

## DIPHTHERIA

COMPARATIVE  
STATEMENT  
OF  
MORTALITY  
BY  
MONTHS  
FOR  
1894-1895  
AND  
AVERAGE  
OF  
9 YEARS  
(1884-1895)

		1894		1895		Aver. 9 yrs.	
		% to all cases	Deaths to 100,000 pop	% to all cases	Deaths to 100,000 pop	% to all cases	Deaths to 100,000 pop
State		3.32	31.4	3.02	29.6	4.72	43.9
Total cities over 60,000 population		2.02	25.5	3.39	45.0	4.00	54.6
Total cities between 15,000 & 60,000 pop		2.87	32.5	1.22	13.7	3.04	28.7
Total cities between 5,000 & 15,000 pop		4.93	45.5	2.99	29.9	5.12	49.8
State, outside centres over 5,000 pop		3.85	32.2	3.01	26.0	5.21	41.4
		% this cause		% this cause		% this cause	
Sex of	Males	52.23		48.25		49.71	
	Females	47.47		51.75		50.29	
Age	Under 1 yr	3.24	1.02	3.43	1.02	3.90	2.07
	1 to 2 yrs	6.88	2.16	8.52	2.55	7.66	4.07
	2 - 3	10.73	3.37	12.43	3.62	10.12	5.32
	3 - 4	12.55	3.93	10.51	3.11	11.13	5.91
	4 - 5	9.92	3.11	8.37	2.47	10.12	5.32
	5 - 10	30.43	11.43	31.97	9.49	35.26	18.66
	10 - 15	13.76	4.32	13.95	4.13	13.27	7.67
	15 - 20	3.44	1.02	4.72	1.47	4.33	2.30
Over 20		2.22	.69	5.89	1.72	3.01	1.61
Parent Nationality	Both American	19.03		22.10		20.26	
	Both Foreign	65.18		58.37		63.29	

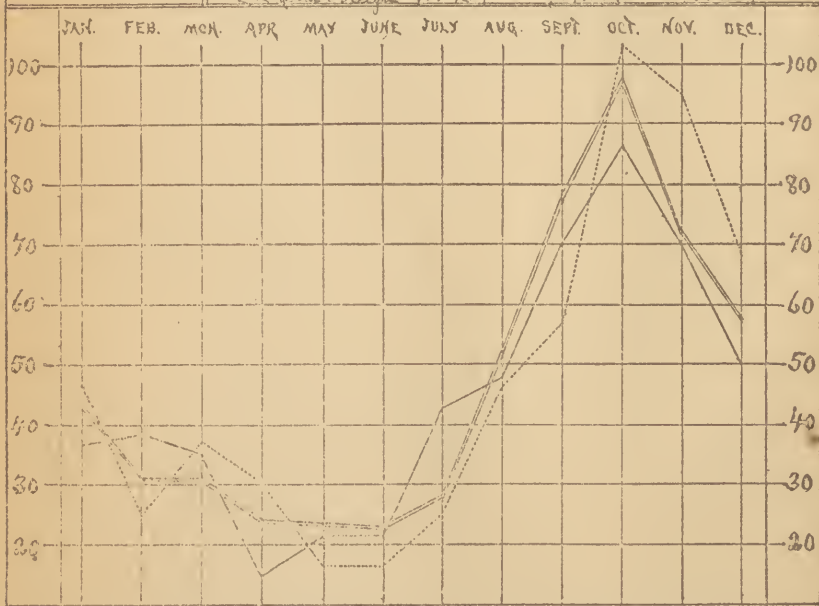


# MINNESOTA STATE BOARD OF HEALTH & VITAL STATISTICS

## ENTERIC (TYPHOID) FEVER

COMPARATIVE  
STATEMENT  
OF  
MORTALITY  
BY  
MONTHS  
FOR  
1894-1895  
AND  
AVERAGE  
OF  
9. YEARS  
(1887-1895)

	State	1894		1895		Aver. 9 yrs.	
		% to all cases	Deaths to 100,000 pop.	% to all cases	Deaths to 100,000 pop.	% to all cases	Deaths to 100,000 pop.
	Total cities over 60,000 population	3.59	34.0	3.08	36.0	3.77	42.5
	Total cities between 15,000 & 60,000 pop.	3.28	41.4	2.88	38.1	4.18	63.8
	Total cities between 5,000 & 15,000 pop.	8.18	92.4	12.02	128.6	8.72	128.4
	State outside centres over 5,000 pop.	7.55	69.7	5.84	58.3	3.80	50.4
		3.01	25.1	3.03	26.2	3.12	30.1
		% to this cause		% to this cause		% to this cause	
Sex	Males	58.69		60.49		60.22	
	Females	41.31		39.58		39.78	
	Under 5 yrs	5.42	1.84	6.17	2.22	5.06	2.15
	5 to 10 "	6.35	2.16	6.17	2.22	5.79	2.46
	10 - 15 "	4.30	1.46	9.17	3.30	6.70	2.84
	15 - 20 "	12.71	4.34	11.64	4.19	11.13	5.99
Age	20 - 30 "	32.50	11.68	32.63	11.75	34.59	15.52
	30 - 40 "	26.12	7.24	20.46	7.37	16.49	6.99
	40 - 50 "	9.15	3.11	8.11	2.92	7.06	2.99
	50 - 60 "	3.86	1.14	2.67	.89	3.80	1.61
	Over 60 "	1.87	.64	2.64	.95	2.71	1.15
	Both American	15.04		18.16		15.76	
	Both Foreign	67.75		64.19		67.21	



1894 ———

1895 - - - - -

Average 9 yrs. ———



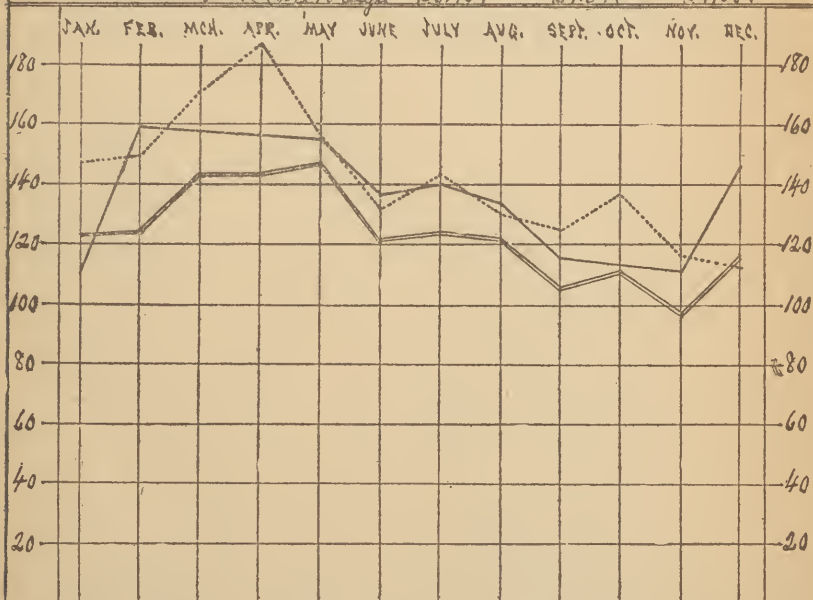
# MINNESOTA STATE BOARD OF HEALTH & VITAL STATISTICS.

## TUBERCULAR

## DISEASES

COMPARATIVE  
STATEMENT  
OF  
MORTALITY  
BY  
MONTHS  
FOR  
1894-1895  
AND  
AVERAGE  
OF  
9-YEARS  
(1887-1895)

	State	1894		1895		1894	1895
		% to all cases	per 100,000 pop.	% to all cases	per 100,000 pop.	% to all cases	per 100,000 pop.
Total cities over 60,000 population		11.06	104.4	10.98	107.5	10.09	113.7
Total cities between 15,000 & 60,000 pop.		13.13	165.6	14.50	159.0	10.73	163.9
Total cities between 5,000 & 15,000 pop.		10.72	121.2	10.46	111.2	9.13	133.9
Total cities between 500 & 5,000 pop.		13.41	123.7	12.54	125.1	11.55	153.3
State outside cities over 5,000 pop.		9.98	83.3	10.44	90.4	9.70	93.5
		% this cause		% this cause		% this cause	
Sex	Males	46.74		44.36		46.28	
	Females	53.28		55.64		53.72	
Age	Under 1 yr.	4.56	4.76	4.67	5.02	5.00	5.68
	1 to 5 yrs.	6.03	6.29	5.36	5.78	5.34	6.07
	5 - 10 "	2.32	2.41	2.36	2.54	2.16	2.46
	10 - 20 "	11.44	11.93	12.41	13.32	11.63	13.21
	20 - 30 "	31.02	32.39	23.98	32.13	30.48	34.64
	30 - 40 "	21.90	22.86	21.74	23.87	20.41	23.27
	40 - 50 "	9.67	10.09	9.92	10.66	10.48	11.91
Age	50 - 60 "	6.93	7.24	7.74	8.33	7.30	8.22
	60 - 70 "	5.72	5.96	5.85	6.29	5.90	6.78
Race							
Both American		17.27		18.02		17.73	
Both Foreign		65.45		67.04		64.56	



1894 ————— 1895 ..... Average 9 yrs. =====

# MINNESOTA STATE BOARD OF HEALTH & VITAL STATISTICS.

## DIARRHOEAL DISEASES

OF

## CHILDREN

COMPARATIVE  
STATEMENT

OF

MORTALITY

BY

MONTHS

FOR

1894 - 1895

AND

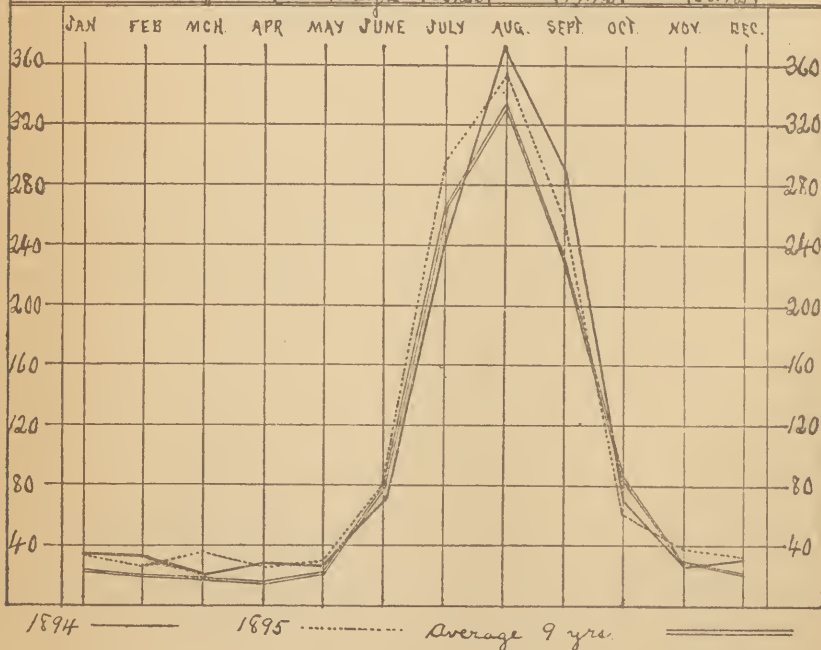
AVERAGE

OF

9 - YEARS

(1887 - 1895)

	State	1894		1895		Aver. 9 yrs.	
		% to all cases	Deaths to 100,000 pop.	% to all cases	Deaths to 100,000 pop.	% to all cases	Deaths to 100,000 pop.
		8.25	77.2	8.05	78.8	7.74	87.2
	Total cities over 60,000 population	9.11	114.9	8.61	114.0	10.08	153.9
	Total cities between 15,000 & 60,000 pop.	13.26	149.9	10.50	112.4	13.10	192.1
	Total cities between 5,000 & 15,000 pop.	8.93	82.5	10.25	102.4	7.02	93.1
	State outside centres over 5,000 pop.	7.53	62.9	7.40	64.1	6.14	59.2
		% to this cause		% to this cause		% to this cause	
Sex	Males	55.17		54.55		54.35	
	Females	48.83		45.45		45.57	
Age	Under 1 yr.	7.69	6.03	9.83	7.70		
	1 to 2	7.64	5.98	7.65	6.03		
	2 to 3	7.46	5.91	7.01	5.52		
	3 to 4	9.87	7.81	8.06	6.35		
	11 to 12	3.53	3.79	3.22	2.54		
	Under 1 yr.	77.54	61.4	76.47	60.5	77.39	67.6
	1 to 2 yrs.	16.12	13.4	15.29	12.1	16.01	13.9
Parent's Nativity	2 to 3	3.28	2.10	4.67	3.67	3.52	3.07
	3 to 5	2.96	2.35	3.14	2.48	2.29	1.99
	Both American	25.74		26.91		23.75	
	Both Foreign	55.25		49.72		58.92	



## APPENDIX IV.

## REPORT ON TUBERCULIN FOR 1895 AND 1896.

LOCALITY.	COUNTY.	Amount Sent.	Reports Received.	Animals Condemned.	Animals Released.	Doses Not Accounted for.
Austin (city).....	Mower.....	2	2	.....	2	.....
Bird Island (village).....	Renville.....	6	6	.....	6	.....
Faribault (city).....	Rice.....	6	7	.....	7	.....
Garfield township.....	Polk.....	6	5	.....	5	1
Hampden township.....	Kittson.....	57	59	16	43	.....
Kingman township.....	Renville.....	21	19	11	8	2
Le Sueur (city).....	Le Sueur.....	6	1	.....	1	5
Minneapolis (city).....	Hennepin.....	226	226	41	185	.....
Bingham Lake (village).....	Cottonwood.....	36	.....	.....	.....	36
Mankato (city).....	Blue Earth.....	26	14	1	13	12
Northfield township.....	Rice.....	6	.....	.....	.....	6
New Ulm (city).....	Brown.....	12	.....	.....	.....	12
Nelson.....	Watonwan.....	2	.....	.....	.....	2
Rochester (city).....	Olmsted.....	18	4	.....	4	14
Red Wing (city).....	Goodhue.....	34	33	.....	33	1
Renville (village).....	Renville.....	15	15	.....	15	.....
St. Peter (city).....	Nicollet.....	42	42	.....	42	.....
Starbuck (village).....	Pope.....	6	6	.....	6	.....
Shakopee (city).....	Scott.....	1	.....	.....	.....	1
St. Paul (city).....	Ramsey.....	2,566	2,473	113	2,360	93
St. James (city).....	Watonwan.....	12	11	.....	11	1
South St. Paul (city).....	Dakota.....	60	52	.....	52	8
Spring Valley (village).....	Fillmore.....	6	.....	.....	.....	6
Thompson township.....	Kittson.....	7	.....	.....	.....	7
White Bear Lake (village).....	Ramsey.....	2	.....	.....	.....	2
Waseca (city).....	Waseca.....	2	.....	.....	.....	2
Welcome (village).....	Martin.....	2	.....	.....	.....	2
Totals.....	.....	3,185	2,975	182	2,793	213

## APPENDIX V.

TABLE SHOWING DISTRIBUTION AND DISPOSAL OF ANIMALS SUSPECTED OF AND ISOLATED FOR GLANDERS, 1895 AND 1896.

LOCALITY.	1895.					1896.				
	Cases.	Killed.	Died.	Released.	Remaining.	Cases.	Killed.	Died.	Released.	Remaining.
AITKIN COUNTY—										
Aitkin (village).....	6			6						
BECKER COUNTY—										
Carsonville township.....	1				1					
Lake Park (village).....						6			6	
Erie township.....						1	1			
Audubon township.....						22	1		21	
Detroit (village).....						1				1
BENTON COUNTY—										
Langola township.....						3			3	
BIG STONE COUNTY—										
Graceville (village).....	2	1		1						
BLUE EARTH COUNTY—										
Lincoln township.....	9	9								
BROWN COUNTY—										
New Ulm (city).....	1	1								
CARVER COUNTY—										
Osaka (city).....						2	2			
CASS COUNTY—										
Unorganized township.....						5	5			
CHIPPewa COUNTY—										
Granite Falls (village).....	1				1					
Sparta Township.....						5	2	2		1
CHISAGO COUNTY—										
Nessel township.....						1				1
CLAY COUNTY—										
Felton township.....	2	1		1						
Hagen township.....	5	2			3					
COTTONWOOD COUNTY—										
Great Bend township.....	1	1								
CROW WING COUNTY—										
Daggett Brook township.....	1				1					
Oak Lawn township.....						1	1			
DAKOTA COUNTY—										
Hastings (city).....						1		1		
DOUGLAS COUNTY—										
Alexandria.....						1				1
FILLMORE COUNTY—										
Chatfield (city).....	1				1					
Spring Valley (village).....						1	1			
GOODHUE COUNTY—										
Red Wing (city).....	1	1								
GRANT COUNTY—										
North Ottawa township.....	5	2		3						
Hereford township.....	2				2					
St. Olaf township.....						12	3		9	
HENNEPIN COUNTY—										
Plymouth township.....	2	1			1					
Minneapolis (city).....	99	99				110	110			
Brooklyn township.....						1	1			
Crystal Lake township.....						2	1		1	
HUBBARD COUNTY—										
Park Rapids (village).....	1				1					
KANDIYOHl COUNTY—										
Holland township.....	1				1					
Roseville township.....						1				1
KITTSOON COUNTY—										
Davis township.....						1	1			
Hallock township.....	4	4								
JACKSON COUNTY—										
Alba township.....						5	3		2	
LINCOLN COUNTY—										
Drammen township.....	2			2						
Lake Stay township.....	2				2					

## APPENDIX V.—Continued.

LOCALITY.	1895.					1896.				
	Cases.	Killed.	Died.	Released.	Remaining.	Cases.	Killed.	Died.	Released.	Remaining.
LYON COUNTY—										
Custer township.....	1				1					
Lake Sarah township.....	1	1								
MCLEOD COUNTY—										
Helen township.....	6	1		5						
Hutchinson township.....	1				1					
MARSHALL COUNTY—										
Middle River township.....	1	1								
Oak Park township.....						11	5		6	
Alma township.....	6	1		5						
MORRISON COUNTY—										
Bellevue township.....						3			3	
MURRAY COUNTY—										
Slayton (village).....	1		1							
Fenton township.....	1			1						
NOBLES COUNTY—										
Worthington (village).....	2			2						
Hersey township.....	8	3		5						
NORMAN COUNTY—										
Hague township.....	2			2						
Mary township.....						1			1	
OTTER TAIL COUNTY—										
St. Olaf township.....	5	3		1	1					
Sverdrup township.....						4	2		2	
Perham township.....						1	1			
PIPESTONE COUNTY—										
Burke township.....	1			1						
POLK COUNTY—										
East Grand Forks (village).....	3				3					
Sandsville township.....						10			10	
Crookston township.....						2				2
Lake Pleasant township.....						3				3
POPE COUNTY—										
Glenwood township.....	1			1						
RAMSEY COUNTY—										
St. Paul (city).....	5	5				11	11			
REDWOOD COUNTY—										
Kintire township.....	6	6								
Johnsonville township.....	3	3				7	1			6
Willow Lake township.....						4	3			1
Waterbury township.....										
RENVILLE COUNTY—										
Emmett township.....	2			2						
Renville (village).....	1			1		1			1	
Mellville township.....						6				6
RICE COUNTY—										
Walcott township.....	3	1		2						
Faribault (city).....	2	1		1						
Warsaw township.....	3			3						
Dundas (village).....						1			1	
ROCK COUNTY—										
Denver township.....	1			1						
STEARNS COUNTY—										
St. Martin township.....	1	1								
Albany (village).....	1	1				3	3			
Spring Hill township.....						5	1		4	
STEELE COUNTY—										
Havana township.....	1			1						
TODD COUNTY—										
Mykeham township.....						1				1
WABASHA COUNTY—										
Chester township.....	2	2								
Lake City (city).....	1			1						
WADENA COUNTY—										
Shell River township.....						2				2
WASHINGTON COUNTY—										
Oneka township.....	1			1						
WATONWAN COUNTY—										
Madelia township.....	1			1						



APPENDIX V.—*Continued.*

LOCALITY.	1895.					1896.				
	Cases.	Killed.	Died.	Released.	Remaining.	Cases.	Killed.	Died.	Released.	Remaining.
WILKIN COUNTY—										
Breckenridge (village).....	1			1						
WRIGHT COUNTY—										
Victor township.....	4		1	3		2	2			
Albion township.....	2				2					
Middleville township.....	3	2		1						
Waverly (village).....	1	1								
Howard Lake (village).....	2				2					
Buffalo township.....	1			1						
Clearwater (village).....						1				1
YELLOW MEDICINE COUNTY—										
Hazel Run township.....	1	1								
Clarkfield (village).....	1			1						

## GENERAL STATISTICS OF GLANDERS, 1895-96.

SUMMARY.	1895.	1896.
Counties invaded.....	40	29
Localities invaded.....	61	41
Number of horses isolated.....	243	264
Number of horses killed.....	156	161
Number of horses died.....	2	3
Number of horses released.....	44	70
Number of horses disposition not reported... ..	41	30

## APPENDIX VI.

## REPORT ON MALLEIN FOR 1895 AND 1896.

LOCALITY.	COUNTY.	Doses Sent.	Reports Received.	Animals Condemned.	Animals Released.	Doses not Accounted for.
Alma township .....	Marshall .....	6	5	.....	5	1
Aitkin (village) .....	Aitkin .....	6	.....	.....	.....	6
Albion township .....	Wright .....	2	2	.....	2	.....
Alba township .....	Jackson .....	6	5	3	2	1
Audubon township .....	Becker .....	22	22	1	21	.....
Alexandria township .....	Douglas .....	3	.....	.....	.....	3
Albany (village) .....	Stearns .....	2	2	1	1	.....
Burke township .....	Pipestone .....	2	.....	.....	.....	2
Buffalo township .....	Wright .....	2	.....	.....	.....	2
Chatfield (city) .....	Fillmore .....	2	1	.....	1	1
Clarkfield (city) .....	Yellow Medicine .....	1	.....	.....	.....	1
Chester township .....	Wabasha .....	2	2	.....	2	.....
Crookston township .....	Polk .....	3	.....	.....	.....	3
Detroit (village) .....	Becker .....	2	.....	.....	.....	2
Dundas (village) .....	Rice .....	2	.....	.....	.....	2
East Grand Forks (village) .....	Polk .....	4	.....	.....	.....	4
Glenwood township .....	Pope .....	2	1	.....	1	1
Granite Falls (village) .....	Yellow Medicine .....	2	.....	.....	.....	2
Graceville (village) .....	Big Stone .....	2	2	1	1	.....
Howard Lake (village) .....	Wright .....	2	.....	.....	.....	2
Hendrum township .....	Norman .....	2	2	.....	2	.....
Hutchinson township .....	McLeod .....	4	.....	.....	.....	4
Havana township .....	Steele .....	3	.....	.....	.....	3
Holland township .....	Kandiyohi .....	2	.....	.....	.....	2
Hersey township .....	Nobles .....	9	8	2	6	1
Helen township .....	McLeod .....	6	5	1	4	1
Johnsonville township .....	Redwood .....	2	2	.....	2	.....
Kingman township .....	Renville .....	6	.....	.....	.....	6
Lake Stay township .....	Lincoln .....	2	.....	.....	.....	2
Lincoln township .....	Blue Earth .....	31	13	5	13	13
Cass county .....	Cass .....	8	8	5	3	.....
Lake Park township .....	Becker .....	6	6	.....	6	.....
Lake Pleasant township .....	Polk .....	6	.....	.....	.....	6
Minneapolis (city) .....	Hennepin .....	62	47	22	25	15
Madelia (village) .....	Watsonwan .....	6	.....	.....	.....	6
Middleville township .....	Wright .....	6	3	2	1	3
Mary township .....	Norman .....	2	1	.....	1	1
Mellville township .....	Renville .....	6	.....	.....	.....	6
Minnetoca township .....	Jackson .....	2	.....	.....	.....	2
North Ottawa township .....	Grant .....	6	5	2	1	5
New Ulm (city) .....	Brown .....	6	1	1	.....	.....
Oak Park township .....	Marshall .....	16	8	4	4	8
Plymouth township .....	Hennepin .....	2	.....	.....	.....	2
Park Rapids (village) .....	Hubbard .....	3	.....	.....	.....	3
Renville (village) .....	Renville .....	2	2	1	1	.....
Red Wing (city) .....	Goodhue .....	1	.....	.....	.....	1
St. Paul (city) .....	Ramsey .....	29	15	5	10	14
Sleepy Eye (village) .....	Brown .....	6	.....	.....	.....	6
Stony Brook township .....	Grant .....	6	.....	.....	.....	6
Slayton (village) .....	Murray .....	2	.....	.....	.....	2
St. Olaf township .....	Otter Tail .....	17	16	6	10	1
Sverdrup township .....	Otter Tail .....	8	2	.....	2	6
South St. Paul (city) .....	Dakota .....	6	.....	.....	.....	6
Sandsville township .....	Polk .....	22	22	.....	12	.....
Viding township .....	Clay .....	3	3	3	.....	.....
Victor township .....	Wright .....	12	5	1	4	7
Wolcott township .....	Rice .....	9	9	4	5	.....
Warsaw township .....	Rice .....	3	3	1	.....	.....
Willow Lake township .....	Redwood .....	6	6	.....	6	.....
Totals .....	.....	411	239	71	156	174

## APPENDIX VII.

## REPORT FROM NEW BRIGHTON STOCK YARDS, OCT. 30, 1896.

1896.	CATTLE.							HOGS.					SHEEP.							
	No. Cattle	Slaughtered.	Sold.	Isolated for Whal.	Going Through.	Destination.	Condition.	No. Hogs	Slaughtered.	Sold.	Going Through.	Destination.	Condition.	No. Sheep	Slaughtered.	Sold.	Isolated for Whal.	Going Through.	Destination.	Condition
Oct. 30.....	183						Good							180						Good
Oct. 31.....	345						Good							4,270						Good
Nov. 2.....	882						Good							8,987						Good
Nov. 3.....							Good							677						Good
Nov. 4.....	75						Good													Good
Nov. 5.....							Good	24						2,250						Good
Nov. 6.....	137	51	51				Good	173		173	173			368	60	1,057		1,047	Chicago	Good
Nov. 7.....							Good	4							80	60				Good
Nov. 8.....	120				120	Chicago	Good													Good
Nov. 9.....	572	44	44		575	Chicago	Good	77	77	90				4,080	95	95	*2	460	Chicago	Good
Nov. 10.....	57				64	Anoka	Good	15	22	22				8,375				1,980	Chicago	Good
Nov. 11.....	68	68	68		64	Chicago	Good	7						1,540	60			8,375	Chicago	Good
Nov. 12.....							Good	105	105	105				8,876				5,600	Chicago	Good
Nov. 13.....	4	4				Chicago	Good							1,985	75		+2			Good
Nov. 14.....	23					Chicago	Good	140		61	61	Milw'ke	Good	1,985						Good
Nov. 16.....	253	64	95		120	Chicago	Good							12,225		1,075		2,680	Chicago	Good
Nov. 17.....					28	Chicago	Good	8	42	8		Chicago		5,775						Good
Nov. 18.....	261	29	145		65	Chicago	Good	75						463				630	Chicago	Good
Nov. 19.....	65	47					Good	10	85		72	Milw'ke		5,830				1,050	Anoka	Good
Nov. 20.....	140													8,170						Good
Total.....	2,546	307	403		1,036			888	349	356	306			62,006	370	2,756	4	20,842		

\* Bloated.

† Crippled.

1896.	CATTLE.							HOGS.							SHEEP.						
	No. Cattle	Slaughtered.	Sold.	Isolated for Whal.	Going Through.	Destination.	Condition.	No. Hogs	Slaughtered.	Sold.	Going Through.	Isolated for Whal.	Destination.	Condition.	No. Sheep	Slaughtered.	Sold.	Isolated for Whal.	Going Through.	Destination.	Condition.
Nov. 21.....	53	21	112	.....	.....	.....	.....	73	73	73	.....	.....	.....	.....	2,630	.....	1,081	.....	1,620	Chicago	Good
Nov. 23.....	71	.....	71	.....	.....	.....	.....	6	.....	6	.....	.....	.....	.....	.....	95	1,062	.....	9,830	Chicago	Good
Nov. 24.....	22	44	70	.....	22	Chicago	Fair	67	73	67	.....	.....	.....	.....	2,620	.....	.....	.....	.....	Chicago	Good
Nov. 25.....	.....	.....	.....	.....	.....	.....	.....	81	81	81	.....	.....	.....	.....	1,850	60	338	.....	2,025	Chicago	Good
Nov. 27.....	60	40	.....	.....	40	Chicago	Good	.....	.....	.....	.....	.....	.....	.....	.....	30	.....	.....	.....	Chicago	Good
Nov. 28.....	.....	.....	.....	.....	.....	.....	.....	10	.....	10	.....	.....	.....	.....	.....	34	.....	.....	2,560	Chicago	Good
Nov. 30.....	.....	.....	.....	.....	.....	.....	.....	70	.....	.....	.....	.....	.....	.....	.....	.....	404	.....	404	Chicago	Good
Dec. 1.....	108	.....	.....	.....	.....	.....	.....	11	10	.....	.....	.....	.....	.....	.....	150	.....	.....	.....	Chicago	Good
Dec. 2.....	.....	.....	.....	.....	.....	.....	.....	71	10	.....	.....	.....	.....	.....	.....	1,124	.....	.....	.....	Chicago	Good
Dec. 3.....	248	45	137	.....	219	Chicago	Good	83	71	83	.....	.....	.....	.....	3,550	.....	.....	*3	.....	Chicago	Good
Dec. 4.....	.....	43	18	.....	.....	.....	.....	75	86	75	.....	.....	.....	.....	.....	75	.....	.....	.....	Chicago	Good
Dec. 5.....	.....	23	7	.....	.....	.....	.....	162	85	143	.....	.....	.....	.....	3,763	20	.....	.....	.....	Chicago	Good
Dec. 6.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	Chicago	Good
Dec. 7.....	48	.....	22	.....	.....	.....	.....	.....	143	.....	.....	.....	.....	.....	.....	50	.....	.....	.....	Chicago	Good
Dec. 8.....	8	216	463	.....	251	.....	.....	20	.....	14	.....	.....	.....	.....	.....	199	.....	+2	3,000	Chicago	Good
Total.....	613	.....	.....	.....	.....	.....	.....	648	522	552	.....	.....	.....	.....	15,744	289	3,144	5	19,139	.....	.....

\* Overfeed.

† Bloated.

## NEW BRIGHTON STOCK YARDS, DEC. 9, 1896.

1896.	CATTLE.							HOGS.					SHEEP.							
	No. Cattle Received.	Slaughtered.	Sold.	Isolated for Whar.	Going Through.	Destination.	Condition.	No. Hogs Received.	Slaughtered.	Sold.	Isolated for Whar.	Destination.	Condition.	No. Sheep Received.	Slaughtered.	Sold.	Isolated for Whar.	Going Through.	Destination.	Condition.
December 9.....	.....	.....	.....	.....	.....	.....	.....	9	.....	.....	.....	.....	.....	220	.....	.....	.....	.....	.....	.....
December 10.....	.....	.....	.....	.....	.....	.....	.....	13	.....	13	.....	.....	.....	2,015	100	.....	.....	.....	.....	.....
December 11.....	1	35	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....	.....
December 12.....	55	20	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	450	40	40	.....	.....	.....	.....
December 13.....	295	40	121	.....	65	Chicago	Good	.....	.....	.....	.....	.....	.....	1,790	40	.....	.....	3,885	Chicago	Good
December 14.....	.....	30	.....	.....	.....	.....	.....	71	.....	62	.....	.....	.....	4,620	75	1,742	.....	.....	.....	.....
December 15.....	.....	52	.....	.....	.....	.....	.....	82	.....	91	.....	.....	.....	815	.....	.....	.....	.....	.....	.....
December 16.....	.....	.....	.....	.....	.....	.....	.....	.....	41	.....	.....	.....	.....	.....	85	.....	.....	.....	.....	.....
December 17.....	100	.....	.....	.....	100	Iowa	Fair	.....	152	8	.....	.....	.....	.....	75	.....	.....	.....	.....	.....
December 18.....	.....	.....	.....	.....	.....	.....	.....	13	.....	21	.....	.....	.....	620	.....	.....	.....	.....	.....	.....
December 19.....	25	21	25	.....	.....	.....	.....	30	30	30	.....	.....	.....	2,450	80	80	.....	.....	.....	.....
December 20.....	45	45	45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,240	35	.....	.....	.....	.....	.....
December 21.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	195	.....	.....	.....	.....	.....	.....
December 22.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
December 23.....	34	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	535	243	315	1	165	.....	.....	229	223	255	.....	.....	.....	14,415	570	1,940	14	.....	.....	.....

\* Tuberculosis.

† Overfeed.

† Bloated.

NEW BRIGHTON STOCK YARDS, DEC. 24, 1896.

1896.	CATTLE.							HOGS.							SHEEP.						
	No. Cattle	Slaughtered.	Sold.	Isolated for	Going Through.	Destination.	Condition.	No. Hogs	Slaughtered.	Sold.	Isolated for	Going Through.	Destination.	Condition.	No. Sheep	Slaughtered.	Sold.	Isolated for	Going Through.	Destination.	Condition.
December 24.....	29	29	29	.....	40	On feed	.....	8	20	.....	.....	.....	.....	.....	.....	.....	306	.....	.....	.....	.....
December 26.....	98	.....	28	.....	32	On feed	.....	16	.....	16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
December 28.....	72	.....	5	.....	25	Chicago	Fair	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
December 29.....	38	37	72	.....	35	On feed	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
December 30.....	4	.....	18	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
December 31.....	.....	34	.....	.....	.....	.....	.....	.....	.....	31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
January 2.....	22	35	22	.....	50	Chicago	Good	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
January 4.....	.....	.....	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
January 5.....	21	25	21	.....	.....	.....	.....	8	40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
January 6.....	4	21	.....	.....	.....	.....	.....	95	95	95	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
January 7.....	45	29	25	.....	.....	.....	.....	25	.....	31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total .....	333	210	270	.....	182	.....	.....	152	155	173	.....	.....	.....	.....	815	330	926	12	11,645	.....	.....

\* Crippled.

† Bloated.

‡ Water bloated.

W. H. WITTEY, Inspector

RECAPITULATION.

Total cattle received.....	4,027	Total hogs received.....	1,909	Total sheep received.....	92,980
Total cattle slaughtered.....	1,076	Total hogs slaughtered.....	1,451	Total sheep slaughtered.....	1,578
Total cattle shipped.....	2,664	Total hogs shipped.....	306	Total sheep shipped.....	47,781
Cattle on feed.....	850	Balance of hogs on hand.....	.....	Total sheep on feed.....	.....



## APPENDIX VIII.

## "STATE BOARD OF HEALTH" FUND—FINANCIAL STATEMENT.

*January 1, 1895. to January 1, 1897.*

Appropriation Aug. 1, 1894, to Aug. 1, 1895.....		\$8,500.00
Expenses Aug. 1, 1894, to Jan. 1, 1895.....	\$3,262.56	
	<hr/>	<hr/>
Balance, Jan. 1, 1895 .....	\$3,262.56	\$8,500.00
	5,237.44	
	<hr/>	<hr/>
	\$8,500.00	\$8,500.00
Balance, Jan. 1, 1895.....		5,237.44
Account of Feb. 13, 1895, for January, 1895.....	410.43	
Account of March 21, 1895, for February, 1895.....	338.07	
Account of April 15, 1895, for March, 1895.....	330.81	
Account of May 18, 1895, for April, 1895.....	286.54	
Account of June 11, 1895, for May, 1895.....	409.47	
Account of July 19, 1895, for June, 1895.....	402.61	
Account of Aug. 13, 1895, for July, 1895.....	401.18	
Secretary's salary, seven months.....	2,041.82	
	<hr/>	<hr/>
	\$4,620.73	
Account of Jan. 11, 1896, paid out of appropriation for 1894-1895.....	297.03	
	<hr/>	<hr/>
	\$4,917.76	\$5,237.44
Balance turned over to treasurer.....	319.68	
	<hr/>	<hr/>
	\$5,237.44	\$5,237.44
Appropriation Aug. 1, 1895, to Aug. 1, 1896.....		8,500.00
Account of Sept. 12, 1895, for August, 1895.....	246.49	
Account of Oct. 19, 1895, for September, 1895.....	325.43	
Account of Nov. 16, 1895, for October, 1895.....	860.40	
Account of Dec. 3, 1895, for November, 1895.....	173.00	
Account of Dec. 17, 1895, for November, 1895.....	82.22	
Account of Jan. 11, 1896, for December, 1895.....	207.95	
Account of Feb. 10, 1896, for January, 1896.....	261.56	
Account of March 6, 1896, for February, 1896.....	392.80	
Account of April 14, 1896, for March, 1896.....	480.46	
Account of May 7, 1896, for April, 1896.....	589.67	
Account of June 6, 1896, for May, 1896.....	324.54	
Account of July 8, 1896, for June, 1896.....	301.27	
Secretary's salary, twelve months.....	3,500.00	
	<hr/>	<hr/>
	\$7,245.79	
Balance, Aug. 1, 1896.....	1,254.21	
	<hr/>	<hr/>
	\$8,500.00	\$8,500.00
Appropriation Aug. 1, 1896, to Aug. 1, 1897.....		\$8,500.00
Account of Aug. 6, 1896, for July, 1895.....	\$603.80	
Account of Sept. 9, 1896, for August, 1895.....	448.98	
Account of Oct. 10, 1896, for September, 1895.....	586.13	
Account of Nov. 6, 1896, for October, 1895.....	472.87	
Account of Dec. 5, 1896, for November, 1895.....	477.98	
Account of Jan. 8, 1897, for December, 1895.....	703.44	
Secretary's salary, five months.....	1,468.30	
	<hr/>	<hr/>
	\$4,701.50	
Balance, Jan. 1, 1897.....	3,798.50	
	<hr/>	<hr/>
	\$8,500.00	\$8,500.00

## ITEMIZED STATEMENT "STATE BOARD OF HEALTH" FUND—FINANCIAL STATEMENT.

	Jan. 1, 1895 to Aug. 1, 1895.	Aug. 1, 1895 to Aug. 1, 1896.	Aug. 1, 1896 to Jan. 1, 1896.
Rent of office.....	\$420.00	\$660.00	\$360.00
Stationery and office supplies.....	91.41	69.90	46.87
Express and freight.....	24.91	62.28	21.11
Telegraph and telephone.....	86.21	82.45	45.23
Clerks .....	461.00	705.00	385.00
Postage .....	134.50	139.30	52.00
Printing blanks, circulars, etc.....	144.13	57.55	.....
Printing Fourteenth Biennial Report.....	126.37	.....	.....
Printing blanks for returns of vital statistics .....	125.40	.....	.....
Books and binding for library.....	39.47	78.23	97.97
Laboratory, supplies, apparatus, assistants, etc.....	863.00	700.21	291.31
Expenses of members attending board meetings.....	50.45	84.76	72.17
Expenses of secretary investigating disease outbreaks.....	12.26	15.92	.....
Salary of secretary.....	2,041.62	3,500.00	1,458.30
Salary of president.....	175.00	125.00	300.00
Smallpox at Brainerd—expenses incurred .....	122.03	.....	.....
Expenses, delegates to Am. P. H. Ass'n conference.....	.....	139.10	138.82
Bacteriological laboratory—established in 1896—expenses and apparatus .....	.....	272.81	833.32
Salary of bacteriologist from Jan. 14, 1896.....	.....	553.28	600.00
Total .....	\$4,917.76	\$7,245.51	\$4,701.50

## "INFECTIOUS DISEASES OF ANIMALS" FUND—FINANCIAL STATEMENT.

*January 1, 1895, to January 1, 1897.*

Appropriation, Aug. 1, 1894, to Aug. 1, 1895.....		\$3,000.00
Expenses from Aug. 1, 1894, to Jan. 1, 1895.....	\$663.54	
	663.54	
Balance, Jan. 1, 1895.....	2,336.46	
	\$3,000.00	\$3,000.00
Balance, Jan. 1, 1895.....		2,336.46
Account of Feb. 13, 1895, for January, 1895.....	216.26	
Account of March 21, 1895, for February, 1895.....	284.76	
Account of April 15, 1895, for March, 1895 .....	114.67	
Account of May 18, 1895, for April, 1895.....	144.87	
Account of June 11, 1895, for May, 1895.....	235.31	
Account of July 19, 1895, for June, 1895.....	143.43	
Account of Aug. 13, 1895, for July, 1895.....	160.91	
	\$1,300.21	
Balance, turned over to treasurer, Aug. 1, 1895.....	1,036.25	
	\$2,336.46	\$2,336.46
Appropriation Aug. 1, 1895, to Aug. 1, 1896.....		3,004.00
Account of Sept. 12, 1895, for August, 1895.....	97.06	
Account of Oct. 19, 1895, for September, 1895.....	108.79	
Account of Nov. 16, 1895, for October, 1895.....	126.56	
Account of Dec. 3, 1895, for November, 1895 .....	70.00	
Account of Dec. 17, 1895, for November, 1895.....	93.06	
Account of Jan. 11, 1896, for December, 1895.....	143.41	
Account of Feb. 10, 1896, for January, 1896.....	170.40	
Account of March 6, 1896, for February, 1896.....	101.40	
Account of April 14, 1896, for March, 1896.....	115.10	
Account of May 7, 1896, for April, 1896.....	83.47	
Account of June 6, 1896, for May 1896.....	76.87	
Account of July 8, 1896, for June, 1896.....	83.50	
	\$1,274.62	
Balance, turned over to treasurer, Aug. 1, 1895.....	1,725.38	
	\$3,000.00	\$3,000.00

## STATE BOARD OF HEALTH.

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Appropriation, Aug. 1, 1896, to Aug. 1, 1897.....		3,000.00
Account of Aug. 6, 1896, for July, 1896.....	109.38	
Account of Sept. 9, 1896, for August, 1896.....	79.10	
Account of Oct. 6, 1896, for September, 1896.....	55.00	
Account of Nov. 6, 1896, for October, 1896.....	66.60	
Account of Dec. 5, 1896, for November, 1896.....	165.61	
Account of Jan. 8, 1897, for December, 1896.....	109.80	
	<u>\$585.49</u>	
Balance, Jan. 1, 1897.....	2,414.51	
	<u>\$3,000.00</u>	<u>\$3,000.00</u>

## ITEMIZED STATEMENT "INFECTIOUS DISEASE OF ANIMALS" FUND.

	Jan. 1, 1895 to Aug. 1, 1895.	Aug. 1, 1895 to Aug. 1, 1896.	Aug. 1, 1896 to Jan. 1, 1897.
Rent of office.....	\$210.00	\$330.00	\$180.00
Stationery and office supplies.....	59.77	32.45	48.15
Express and freight.....	3.85	1.70	.....
Clerks.....	175.00	275.00	150.00
Postage.....	45.00	44.0.	.....
Printing—blanks, circulars, etc.....	52.12	58.32	10.50
Printing Fourteenth Biennial Report.....	169.81	.....	.....
Books and binding for library.....	10.61	6.05	18.65
Professional services and expenses—physicians, veterinarians and members of board investigating disease outbreaks.....	281.94	284.39	26.78
Appraisals—animals killed for infectious disease.....	12.00	.....	21.60
Laboratory—supplies, apparatus, assistants, etc.....	280.11	181.16	.....
Telegraph and telephone.....	.....	21.55	20.20
Care of horses quarantined for glanders.....	.....	40.00	.....
Salary of live stock inspector at New Brighton.....	.....	.....	109.61
	<u>\$1,300.21</u>	<u>\$1,274.62</u>	<u>\$585.49</u>

## "VITAL STATISTICS" FUND—FINANCIAL STATEMENT.

*January 1, 1895, to January 1, 1897.*

Appropriation, Aug. 1, 1894, to Aug. 1, 1895.....		\$1,000.00
Expenses from Aug. 1, 1894, to Jan. 1, 1895.....	\$391.13	
Balance, Jan. 1, 1895.....	608.87	
	<u>\$1,000.00</u>	<u>\$1,000.00</u>
Balance, Jan. 1, 1895.....		608.87
Account of Feb. 13, 1895, for January, 1895.....	120.15	
Account of March 21, 1895, for February, 1895.....	81.05	
Account of April 15, 1895, for March, 1895.....	136.10	
Account of May 18, 1895, for April, 1895.....	70.90	
Account of June 11, 1895, for May, 1895.....	70.00	
Account of July 19, 1895, for June, 1895.....	52.00	
Account of August 13, 1895, for July, 1895.....	51.00	
	<u>\$581.20</u>	
Balance, turned over to treasurer Aug. 1, 1895.....	27.67	
	<u>\$608.87</u>	<u>\$608.87</u>
Appropriation, Aug. 1, 1895, to Aug. 1, 1896.....		1,000.00
Account of Sept. 12, 1895, for August, 1895.....	\$62.50	
Account of Oct. 19, 1895, for September, 1895.....	50.00	
Account of Nov. 16, 1895, for October, 1895.....	57.00	
Account for Dec. 3, 1895, for November, 1895.....	30.00	
Account of Dec. 17, 1895, for November, 1895.....	20.05	
Account of Jan 11, 1896, for December, 1895.....	84.00	
Account of Feb. 10, 1896, for January, 1896.....	75.50	
Account of March 6, 1896, for February, 1896.....	87.00	
Account of April 14, 1896, for March, 1896.....	68.75	
Account of May 7, 1896, for April, 1896.....	65.00	
Account of June 6, 1896, for May, 1896.....	70.35	
Account of July 8, 1896, for June, 1896.....	78.00	
	<u>\$748.15</u>	
Balance, turned over to treasurer Aug. 1, 1896.....	251.85	
	<u>\$1,000.00</u>	<u>\$1,000.00</u>

## BIENNIAL REPORT

Appropriation, Aug. 1, 1896, to Aug. 1, 1897.....		\$1,000.00
Account of Aug. 6, 1896, for July 1896.....	\$61.00	
Account of Sept. 9, 1896, for August, 1896.....	74.00	
Account of Oct. 10, 1896, for September, 1896.....	63.00	
Account of Nov. 6, 1896, for October, 1896.....	74.60	
Account of Dec. 5, 1896, for November, 1896.....	64.75	
Account of Jan. 8, 1897, for December, 1896.....	71.00	
	<u>\$408.35</u>	
Balance, Jan. 1, 1897.....	591.65	
	<u>\$1,000.00</u>	<u>\$1,000.00</u>

## ITEMIZED STATEMENT "VITAL STATISTICS" FUND.

	Jan. 1, 1895 to Aug. 1, 1895.	Aug. 1, 1895 to Aug. 1, 1896.	Aug. 1, 1896 to Jan. 1, 1897.
Stationery and office supplies .....	\$4.00	\$5.05	\$0.75
Printing—blanks, circulars, etc.....	2.25	34.50	2.60
Express and freight.....	28.95	5.35	.....
Clerks.....	411.00	545.00	325.00
Postage.....	135.00	158.25	80.00
	<u>\$581.20</u>	<u>\$748.15</u>	<u>\$408.35</u>

FIRST ANNUAL REPORT  
OF THE  
BACTERIOLOGICAL LABORATORY  
OF THE  
MINNESOTA STATE BOARD OF HEALTH.

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As the board is aware, although the appointment of a bacteriologist was made at the last annual meeting, it was not until the April meeting that any steps were taken towards furnishing or equipping a laboratory. At the meeting in April, plans were submitted and approved for certain furnishings, which were, however, subsequently modified so as to prepare only a part of the large room placed at the board's disposal by the state university for use. It was impossible to obtain at this or any subsequent meeting an expression of opinion as regards the scope of the work to be performed in the laboratory. On this account no official announcement could be made as to what the laboratory was prepared to do, and the work, therefore, has consisted in doing whatever came to hand.

Since June Dr. Hewitt has been placing material formerly in his possession at the disposal of the laboratory, of which an accurate record has been kept and acknowledgment made.

It was found that the laboratory with these materials was so far from equipped that, at the meeting in July, a requisition was brought before the board for further supplies in the way of apparatus. This was passed, and the materials ordered.

Up to this time very little work had been attempted, and the little accomplished was done in the laboratory of pathology and bacteriology of the University of Minnesota.

In order to make it possible to do the work then or since, it has been found necessary to borrow material from time to time from the university. These have been for the most part returned, but owing to the delay in arrival of materials ordered from abroad even



yet it would be impossible to continue the work without occasionally accepting this courtesy. It is a courtesy which this laboratory endeavors to reciprocate as far as possible. Apart from this reciprocity, the working of the laboratories is kept absolutely separated, and careful record is kept in all instances by both laboratories.

The total amount expended on the laboratory to Jan. 1, 1897, is as follows:

Salary of bacteriologist.....	\$1,200.00
Salary of Dr. Wilson, from August.....	330.00
Furnishing and current expenses.....	726.90
Apparatus, etc., still to be paid to Noyes Bros. & Cutler .....	644.96
Current accounts with Noyes Bros. & Cutler still unpaid .....	35.02
Total .....	<hr/> \$2,936.88

Dependent upon the reasons previously stated, work was not properly begun until July, so that the list given below represents at most not more than six months' actual work.

Much work which would doubtless have come into this laboratory has been done in the laboratory established during the last year by the St. Paul board of health.

It is no more than just that the work of this laboratory should receive the credit which is its due. The value of this kind of work to a city is one which cannot be estimated in mere money, but is nevertheless so real that it should lead to the universal establishment of laboratories in connection with the health departments in all cities sufficiently large to support them.

In matters of interest to the state at large, as well as to St. Paul, the St. Paul laboratory has shown its willingness to collaborate with and place at its disposal any results or materials desired by this laboratory, which, in its turn, has endeavored to reciprocate in any way possible.

#### THE BACTERIOLOGICAL DIAGNOSIS OF DIPHTHERIA.

The necessary instructions issued to physicians in the matter of the collection and sending in of specimens from cases of suspected diphtheria can be found in "Circular of Information, No. 1," which

follows this report, and which, with the sanction of the board, should now be issued.\*

The culture medium supplied consists of Löffler's blood-serum mixture, to which 1.25 per cent of glycerine has been added to prevent the too rapid drying of the material.

Immediately on arrival of the specimen it is numbered, and marked with the date and hour. When time permits, from the swab, a cover-glass preparation is made and examined.

Observations made in this laboratory corroborate the experience of others, that from such examinations a positive diagnosis is rarely possible, and a negative diagnosis very unreliable. Hence, although it occasionally happens that a provisional positive diagnosis is given, it is always controlled by a later cultural examination.

The contents of the culture box are at once placed in the incubator, where they remain until a growth appears, if at all, usually in from five to twenty-four hours. The growth, if any, is then examined macroscopically, and microscopically after staining with Löffler's methylene blue, and a diagnosis of "Diphtheria," or "Not Diphtheria," made. Where no growth or a scant growth occurs after twenty-four hours, a statement of "no growth" is given and another specimen asked for. In any event a telegraphic or telephonic report is sent, if demanded.

The microscopic specimen is numbered and filed, while the original of the report blank (see "Circular of Information, No. 1"), together with all information concerning the case, is filed in an envelope bearing the case number, physician's name and date of receipt.

The duplicate of the report is mailed to the physician, and the triplicate to the secretary of the Minnesota State Board of Health. It might be well, perhaps, to send a copy of the report also to the local health officer. This has only occasionally been done. The following is a summary of the examinations made to Jan. 1, 1897:

During May .....	12 examinations.
During June .....	12 examinations.
During July .....	38 examinations.
During August .....	46 examinations.
During September .....	59 examinations.

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\*"Circular of Information, No. 1," owing to the apparent desirability of certain changes, was not issued until March 1, 1897. It has been revised and appears as "Circular of Information, No. 2," with the biennial report for 1897-98. (See page 181.)

During October .....	160 examinations.
During November .....	284 examinations.
During December .....	312 examinations.
<hr/>	
Total .....	923 examinations.

These examinations were distributed as follows:

Owatonna .....	351
Minneapolis .....	290
Austin .....	168
Spring Valley .....	13
Mabel .....	12
*St. Paul .....	11
Lyle .....	6
Scattering .....	72

From the first table it will be seen that this work is markedly increasing, which is perhaps the result of two factors: (1) More cases are probably now in progress than at the time when the examinations were begun; (2) physicians are rapidly coming to know that they can receive an early bacteriological diagnosis, and to appreciate its value.

It will be noted from the second table that more than one-third of the examinations made were from Owatonna. Most of these cases were from the state public school, and were under the professional care, first of Dr. Mary E. Bassett, and later of Dr. J. H. Adair.

The number of examinations made is not to be taken as an index of the number of cases of diphtheria occurring, for in this report are included examinations and repeated re-examinations of not only cases which were suggestive of diphtheria, but specimens collected from healthy individuals who had been possibly exposed to the disease. Dr. Adair, realizing the necessity of stamping out a disease which seemed to have become endemic, has been indefatigable in his efforts to locate the possible source of infection.

The zeal of Dr. Adair, together with the display of intelligent interest on the part of the management of the school, has given material for investigation of the varying forms of the *bacillus diphtheriae* in a place in which it has been long resident, and presumably widespread.

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\*These examinations were made with the consent of the St. Paul Board of Health, and for the convenience of physicians to whom this laboratory is more easily accessible than that of the local board.

All cultures showing any peculiarity in biology or morphology have been preserved, and a large amount of such material is now in the laboratory demanding investigation. The impossibility from lack of time and sufficient assistance of doing this work at present as well as the persistence of a few cases of the disease in this locality, would seem to render it necessary to postpone a complete report until a later date.

It may be here mentioned, that specimens of water from various supplies at Owatonna, earth, sink-cleanings, milk, etc., were all examined for the presence of *B. diphtheriae*, with negative results.

Of the large number of examinations made from cases in Minneapolis, a great many were from the city hospital; the others were from cases occurring in the practice of physicians, from many of whom complaints were forthcoming in reference to the necessity of personally coming, or sending, to the laboratory for the obtaining of culture boxes, or return of specimens. These complaints probably arise on account of an apparent misunderstanding of the relation of the city of Minneapolis to the state board of health. Under the existing law Minneapolis has no legal right to expect the state board of health to help in the administration of her local regulations pertaining to diphtheria or other diseases.

It was to be expected, perhaps, that the Minneapolis department of health, in the absence of any bacteriological laboratory of its own, should have approached this laboratory to ask that some agreement be arrived at whereby the physicians of Minneapolis could be supplied with culture boxes for the collection of specimens from cases of suspected diphtheria. It would apparently be only proper that various depots throughout the city should be established, from which physicians could obtain culture boxes for use, and to which they could be returned after use for transmittal to this laboratory.

The work of distribution and return of boxes to the laboratory, as well as reporting of diagnoses arrived at, should fairly fall to the city health department, where this board is willing to extend the courtesy of doing the necessary laboratory work.

As the Minneapolis health department has made no request, official or otherwise, for any such arrangement, and has given no official recognition to the work of this laboratory in its capacity of affording a common-sense basis for quarantine regulation, it would perhaps be as well that the bacteriologist of the state board of health be instructed to ascertain if it be not possible to come to some such arrangement for the simplification of the work of the laboratory on the one hand and the manifest benefit to the physicians and the department of health of Minneapolis on the other.



Under existing circumstances much valuable time is daily lost by the constant interruptions caused by the giving out of culture boxes, receipt of specimens, or the necessity of repeated efforts to send telephonic reports to physicians, all of which work should be done by the city board.

The examinations made generally throughout the state seem chiefly to have been of value to the local physicians, as affording certain diagnoses in doubtful cases.

Very little information has been obtained of the local conditions, and from that available it would appear that a great necessity exists for the universal adoption of bacteriological examination as the only reliable means of diagnosing diphtheria. Subsequent examinations should be insisted on in all cases in which a positive diagnosis is given, until such examinations show the absence of *B. diphtheriae*, when quarantine may be raised.

Until compliance with these conditions is insisted upon by this board, in cases from which specimens are sent in for diagnosis, the work of this laboratory will have very little importance in the arrest of the spread of this disease, and will be largely but a convenience to physicians, as easily affording them a diagnosis upon which to base treatment, which should be but a part of its object.

Should observance of these conditions be demanded, the work done in this laboratory, and in the laboratories of local health boards, would furnish an accurate index of the health of the state, so far as this disease is concerned.

In the cases examined from Owatonna, Austin and the city hospital of Minneapolis, as well as some occurring in the practice of a few physicians, the request for subsequent examinations, where positive diagnoses have been given, has been complied with. Nothing further than a request has been made before bringing the matter before the board.

Some interesting observations have been made in regard to the persistence of *B. diphtheriae* in the throats of patients after the disappearance of clinical symptoms, as follows:

In two cases occurring at Owatonna (initials C. O. and G. O.) the micro-organism was present eighty-three and ninety-four days respectively from the time of admission to the hospital. In the case of C. O., the specimen taken on the day of admission showed the bacillus present, while in G. O., probably owing to the faulty method of transmittal, it could not be shown until the arrival of the next specimen three weeks later, the delay in sending having arisen from a misleading diagnosis of not diphtheria, made locally, based on a microscopic examination of material taken directly from



the throat, without cultural control. In two cases, occurring in the practice of a Minneapolis physician, the bacilli were still present at the end of seventy-six and sixty-four days, and the investigation is not yet complete. In these cases, corrosive sublimate (1 in 1,000) was and is still being used locally in the throat.

The early disappearance of *B. diphtheriae* has been illustrated in some cases in which it could no longer be demonstrated after ten days from the commencement of the symptoms. Antitoxine had been used in the treatment of these.

The occurrence of *B. diphtheriae* in the throats of persons who showed no symptoms was exemplified in several cases occurring at Owatonna, as well as in the case of a nurse attending a diphtheria patient in Minneapolis.

These observations, corroborating, as they do, the experience of many laboratories, do not serve to demonstrate the futility of bacteriological investigation in showing the presence of the contagium, but rather tend to point out the necessity of careful isolation of the patients and the placing of restraint upon the movements of those brought into close contact with them.

The inability, through press of routine work, of complete tabulation and interpretation of the results of the examinations made, together with the present lack of opportunity to follow up the cultural and pathogenic investigation of the bacteria isolated from these many sources, preclude the immediate publication of anything in the nature of a scientific account of this work and the lessons to be learned from it.

No apology is then made for at present eliminating what is hoped may be given in proper form at a subsequent date.

#### THE DIAGNOSIS OF TYPHOID FEVER.

The universal interest aroused by Widal's announcement, in June last, of a possible early diagnosis in this disease, was intensified by the simplification of the process as pointed out by Johnston in September.

The simplicity of the method for arriving at such important knowledge in a disease so difficult of clinical diagnosis was sufficient reason for its immediate investigation in this laboratory. At Dr. H. M. Bracken's suggestion, the laboratory agreed to coöperate with him in the application of the test to such cases as could be brought under observation.

The results of this investigation Dr. Bracken has already made public at the last meeting of the Minnesota Academy of Medicine, and with his permission that paper as embodying the work of the laboratory is here laid before you. (See page 279.)

In the work done in this connection assuredly the results obtained in this laboratory verify those already published in regard to the importance of the method as a means of aiding and controlling clinical diagnoses, but observations have not been sufficiently numerous nor extended to justify any further report than the foregoing. Investigations concerning other aspects of the question are being carried on, of which, if results warrant it, publication will be made.

With the sanction of the board, this method of diagnosis should now be placed at the command of the physicians and health boards throughout the state, if it be the opinion that such a proceeding will aid the work of the board in the detection, and consequent suppression, of this disease.

#### SPUTUM EXAMINATION FOR PRESENCE OF B. TUBERCULOSIS.

Of the eighty-four examinations made to January 1st the specimens came from the following places:

Minneapolis .....	35
St. Paul .....	7
Scattering .....	<u>42</u>
Total .....	84

The following is a copy of the report sent out to each physician:

#### MINNESOTA STATE BOARD OF HEALTH, BACTERIOLOGICAL LABORATORY (UNIVERSITY OF MINNESOTA), MINNEAPOLIS.

##### REPORT OF EXAMINATION OF SPUTUM FOR TUBERCULOSIS.

Case No.....	Received.....
Patient's Name.....	Address.....
Physician's Name.....	Address.....
Health Officer's Name.....	Address.....
Previous Case No.....	
Remarks .....	
.....	
.....	
Reported .....	Result of Examination.....
.....	

Should the necessity arise for the examination of other fluids, or of tissues, for the presence of B. tuberculosis, special information and sterilized receptacles will be provided on request.

As will be easily understood, the data placed at the disposal of the board are useless under present legislation, by which human tuberculosis, when proven, is neither quarantinable nor reportable to the local health officer.

The matter of doing, or refusing to do, this work was left to the discretion of the laboratory by the action of the board at the July meeting, but the exercise of this discretion involves a large amount of correspondence, and the possibility of occasionally giving offense.

By some physicians, under this regulation, the laboratory is simply looked upon as a convenience for their especial benefit, by which much of their time and money may be saved; and it would seem wiser, under the present legislation, that the attitude of the board for the time being be expressed somewhat in the language employed in the section on "Tuberculosis," in the "Circular of Information."

Should legislative measures such as those under which the health board of New York City operates ever be adopted, whereby all cases of tuberculosis are reported to the local health office without the necessity in every case of informing the patient of such a proceeding, some arrangement could be made with local boards for the report of all such cases to the state board.

Under these conditions the utility of bacteriological diagnosis would be very apparent, and such examinations should form a part of the routine work of this laboratory.

#### RABIES.

In all, fifteen inoculations were made with suspected material from three different sources—A, B, C.

A. On October 21st portions of the medullæ of two rabbits which had succumbed after inoculation with material taken from a child, in which death had resulted from supposed rabies, were examined. Some doubt existed as to the disease induced in the rabbits, and the experiments undertaken were to throw some light on the matter.

With doses of from 0.5 to 1 c. c. of emulsion of these materials rabbits Nos. 1, 2, 3, 4 were inoculated subdurally. The temperature of each was taken twice daily, for a period of thirty days, during which no symptoms occurred, nor did any arise in the next succeeding thirty days during which they were kept under observation. The absence of any symptoms during this period of sixty days would seem to cast doubt upon the original diagnosis\* of rabies, which doubt was strengthened by subsequent experiments, as noted under B.

B. Material obtained from the cord of a rabbit which died twenty-seven days after inoculation with an emulsion of the brain of a brown setter dog supposed to have had rabies.

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\*The fact that this material obtained from the rabbits was not used for about thirty-six hours after death of the animals may be mentioned as a possible reason for the results obtained. The delay was necessary, owing to pressure of other work.

Four rabbits were inoculated—No. 6, No. 7, No. 8 and No. 9.

Rabbit No. 6.—A new animal; weight, 1,700 grams. Inoculated, December 19th, at 9:25 p. m., in left subdural space, with 0.5 c. c. of strong emulsion of B.

No symptoms appeared until January 8th, at 10 a. m., when a temperature of 40.6 degrees C. was observed. The animal, hitherto very active, showed weakness of right hind leg. January 9th, 9 a. m., rabbit stretched on belly with hind legs sprawling, unable to sit up or crawl. Lower jaw dropped. Died 9:35 a. m., or twenty and one-half days after inoculation.

Post Mortem Findings.—Brain slightly congested near seat of inoculation; much mucous in mouth and trachea; trachea and bronchi congested; bladder distended. Brain and medulla placed in pure glycerine.

Rabbit No. 7.—A new animal: weight, 1,850 grams. Inoculated on December 19th, at 9:50 p. m., with 1 c. c. of emulsion of B into left subdural space.

No symptoms until January 4th, at 5 p. m., when the temperature fell to 35.7 degrees C. Symptoms of loss of power of coördination of hind legs, twitching of muscles of back, relaxation of anal sphincter, spasmodic breathing, until death, at 8 p. m., or sixteen days after inoculation.

Post Mortem Findings.—Weight, 1,680 grams; small circular, circumscribed area of fibrinous exudate at seat of inoculation, about three-sixteenths of an inch in diameter. No other organs markedly affected. Cultures from emulsion of brain remained sterile. Rabbits Nos. 14 and 15 immediately inoculated with material from this animal.

Rabbit No. 8.—Same animal as No. 4; weight, 1,160 grams, having increased 120 grams since previous inoculation with A on October 21st. Inoculated in left subdural space with 0.5 c. c. of emulsion on December 19th at 10:15 p. m.

First symptoms were observed January 7th, at 2 p. m., which increased until death occurred, at 5:30 p. m., January 8th; that is, twenty days after inoculation.

Symptoms and post mortem findings as in No. 6, except that salivation was more pronounced, and gnashing of the teeth so great that tongue was bitten and blood escaped from month.

Rabbit No. 9.—Same animal as No. 1; weight, 1,650 grams, having increased 440 grams since previous inoculation with A, on October 21st. Inoculated in right subdural space with 1 c. c. of emulsion on December 19th, at 10:40 p. m.



First symptoms were observed at 2:00 p. m., January 7th, and death occurred at 10:00 a. m., January 8th, or twenty days after inoculation.

Same symptoms as No. 8, but more marked.

Post mortem findings same as No. 6, but congestion and submucous hemorrhage in trachea more marked, and areas of congestion in lungs present.

These observations not only corroborate previous diagnosis of rabies in the dog from which the material originally came, but seem also to confirm the diagnosis of not-rabies in the child from which material A originally came, in that the previous non-lethal inoculation of A did not seem to protect\* rabbits No. 1 and No. 4 (No. 8 and No. 9) against a subsequent inoculation of B. The inoculation period was also shortened in this series from twenty-seven to from sixteen to twenty and one-half days.

C. Material obtained from the medulla of a brown spaniel bitch, which had been under the observation of Dr. Richard Price, V. S., and in whose opinion the symptoms and post mortem findings justified a diagnosis of mute rabies.

With a strong emulsion of this material, four rabbits, Nos. 10, 11, 12, and 13, were inoculated subdurally, on December 20th. Rabbits Nos. 10, 12 and 13 all succumbed in from twelve to nineteen hours after inoculation.

In the post mortem examination no signs of local disturbance were to be made out, and nothing further than a very general venous congestion, especially in upper portions (jugulars in particular) could be detected. Press of other work unfortunately prohibited a careful autopsy.

Rabbit No. 11.—Weight, 775 grams. Inoculated in right subdural space with 0.25 c. c. of emulsion of C, December 20th, at 6 p. m.

The daily temperature remained normal, and no symptoms were to be noticed until January 7th, when typical symptoms of rabies, as exhibited in the rabbit, appeared. Death occurred at 10 a. m., January 8th, or less than nineteen days after inoculation.

Post Mortem.—Usual findings.

This experiment supported the diagnosis of the veterinarian, and from this rabbit a second, No. 16, was inoculated.

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\*How far this fact of nonprotection to a later inoculation of an undoubted virus can be taken as diagnostic must remain a matter of opinion at present.



Rabbit No. 14, inoculated with material from rabbit No. 7.

Rabbit No. 15, inoculated with material from rabbit No. 7.

Rabbit No. 16, inoculated with material from rabbit No. 11.

These rabbits, Nos. 14, 15 and 16, are still under observation, and it is hoped that it will be possible to obtain, from further experiment, material of the greatest possible virulence for use in investigations in connection with certain phases of this work.

In all experiments the emulsion of the brain or cord used for subdural inoculation was examined for the presence of micro-organisms by making cultures. In no case has contamination been detected.

Daily temperature observations are made in every instance, and these and other records preserved in an envelope bearing the number of the animals, etc.

All of these observations have been carried on in collaboration with the St. Paul board of health bacteriological laboratory. The cases there observed will be reported elsewhere. It is here fitting to express the thanks of this laboratory to Drs. Rothrock and Price for their courtesy and for the materials and data placed at its disposal.

#### THE BACTERIOLOGICAL EXAMINATION OF WATER.

Very little could be attempted in the matter of the bacteriological examination of water, although the necessity of such work is very apparent. Some few partial examinations of the water supplied to the laboratory by the city pipes were made, but nothing further was to be observed than that the number of bacteria per c. c. was comparatively small, during May and June varying from 40 to 200 colonies. On one occasion *B. coli communis* was found.

Several examinations were made, at the request of the Owatonna public school management, in the search for *B. diphtheriae*, which resulted negatively, as previously stated.

The method usually employed in this search for *B. diphtheriae*, which may have been faulty, was as follows: To about 100 c. c. of the sample of water about 400 c. c. of a sterile one per cent dextrose broth was added, and the whole incubated for twenty-four hours, when Löffler's serum mixture tubes were inoculated, and agar and gelatine plates made.

The original and all subcultures were carefully examined for *B. diphtheriae*, but in no case was it, or any bacillus closely resembling it, found.

BACTERIOLOGICAL INVESTIGATION IN HOG CHOLERA AND SWINE  
PLAGUE.

Only one series of investigations has been undertaken, which has unfortunately ended without result. No demand has arisen for investigation, except in the one instance, when the materials, improperly directed and without any information as to their character, or what was desired in regard to them, were received. The name of the sender and other information reached the laboratory only when, through the growth of putrefactive micro-organisms, the examination was rendered doubly difficult. Neither the bacillus of hog cholera nor of swine plague was to be found in the material examined (lungs, colon, spleen, stomach, liver), although *B. coli communis* and *B. pyocyaneus* were found. The sender was immediately notified, as soon as his address could be obtained, and he was invited to send further specimens from other cases. Full directions were given, but no reply was ever received to this communication.

The progress of these diseases in neighboring states, and according to reports\* in this state also, seems to demand the active co-operation of all interested. Many points in which bacteriological examinations may aid the clinician will doubtless suggest themselves, and not the least conspicuous would be the determination of what percentage of cases occurring are hog cholera, what swine plague, and how many are cases of mixed infection.

While this laboratory is not at present in a position to publish results of scientific investigation, it would seemingly be wise to make some announcement in regard to what work the laboratory is prepared to do, and what is expected of those who desire to avail themselves of its services.

The following circular of information, which has been prepared with this object in view, is therefore submitted for the approval of the board:

F. F. WESBROOK, M. D.

Director.

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\*See report of superintendent of Farmers' Institutes, for 1896.

